

REVIEW OF THE GENUS *EPIMORIUS* ZELLER AND FIRST
REPORT OF THE OCCURRENCE OF *E. TESTACEELLUS*
RAGONOT IN THE UNITED STATES
(PYRALIDAE: GALLERIINAE)

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ABSTRACT. The neotropical galleriine genus *Epimorius* is redescribed to include the previously unknown male. *Epimorius* belongs to the tribe Tirathabini and is closely related to *Paralipsa* Butler and *Aphomia* Hübner, but is without the modified male forewing venation. Four species of *Epimorius* are recognized: *suffusus* (Zeller), *testaceellus* Ragonot, *prodigiosus* Whalley, and *caribellus*, new species. A fifth species, *Epimorius epipaschiella* Hampson, was misplaced and is now reassigned to the Macrothecini, genus *Macrotheca*. Specimens reared from *Tillandsia fasciculata* Swartz (Bromeliaceae) in Florida are identified as *E. testaceellus* by comparison with the female holotype from Jamaica. They are the first records of the genus for the United States, the first specimens of *testaceellus* known to have been collected since the original description in 1887, and include the first males known for any species of *Epimorius*.

Additional key words: Tirathabini, *Tillandsia*, geographical distribution, new species, Dominica.

Larvae collected and reared by J. B. Heppner in southern and south-central Florida yielded adults of a pyralid moth that is a new record for Florida and the United States. The larvae are associated with the flower pods of *Tillandsia fasciculata* Swartz (Bromeliaceae), a large species of air plant related to Spanish moss, and the early stages are to be further described in a separate paper by Heppner. This moth belongs to the Galleriinae; it has the venation (Fig. 6), genitalia (Figs. 7, 8), and general aspect characteristic of that subfamily, as well as the modified male labial palpi and flattened pouch full of specialized scales on the underside of the male forewing seen in some other genera. Within the present galleriine classification (Whalley 1964: 565, Munroe 1983: 80), it is easily assigned to the tribe Tirathabini, being excluded from the Galleriini by its simple, broad, and rounded rather than twin-pointed uncus; from the Megarthridini by its lack of ocelli; and from the Macrothecini by the presence of all three medial veins in the hindwing, the presence of a proboscis, and the absence on the male labial palpi of the curious scale tufts characteristic of Macrothecini.

Identification to genus and species was not so simple, but the wing shape, size, and reddish-brown coloring seemed to narrow the search to *Epimorius* Zeller, a small neotropical genus of three described species, of which only females were known. For the benefit of future investigators, I include here a review of what I learned about *Epimorius* and a description of one additional species.

Although similar, the Florida specimens did not agree with three females of the type species, *E. suffusus* (Zeller), which were the only identified specimens of any *Epimorius* species in the National Collection (USNM). The moths from Florida have a more definite forewing pattern of dark transverse bands and discal spot, and lack the smudgy brown basal patch of *E. suffusus*. Paul E. S. Whalley, to whom I showed specimens at the British Museum in 1976, thought that they would prove to be a new species of *Epimorius*. I hesitated to describe it because no material of the Jamaican *E. testaceellus* Ragonot could be found, and I wrongly supposed the unique female type to be lost. More recently, after finding the redescription and colored illustration of *testaceellus* in the rare 8th volume of the *Romanov Mémoires* (Ragonot 1901:430, pl. 45, fig. 22), I wrote Pierre Viette, Muséum National d'Histoire Naturelle, Paris (MNHN), and he kindly responded by sending the holotype of *testaceellus*.

Although in poor condition, the holotype appears to have been a moth of similar structure, size, color, and wing pattern, and the genitalia (DCF Slide No. 1559) are so nearly identical to those of the Florida specimens that it would be difficult to argue that the latter are anything other than *E. testaceellus*. As the female type from Jamaica is the only other specimen known, no comparison of male genitalia could be made, and the description of the male in the present paper is the first for any species of *Epimorius*.

EPIMORIUS ZELLER, 1877

Epimorius Zeller (1877:76, pl. 2, fig. 28), Ragonot (1887:20; 1901:430, pl. 45, fig. 22), Hampson (1917:45 (in part)), Whalley (1964:581, 610; pl. 19, figs. 40, 42; pl. 41, fig. 101), Fletcher and Nye (1984:53).

Type species: *Melissoblaptus suffusus* Zeller (1877:76, pl. 2, fig. 28), monobasic. *Epimorius* was established as a subgenus of *Melissoblaptus* Zeller, 1839.

Diagnosis. A small neotropical group of reddish-brown moths with a simple, diffuse, darker brown forewing pattern, or hardly any pattern. Structurally typical of the tribe Tirathabini and not differing greatly from species of the genera *Paralipsa* Butler or *Aphomia* Hübner except in their unusual coloring, diffuse pattern, and unmodified forewing venation in both sexes of all included species. The cell of the male forewing in some species of those two genera is greatly enlarged, extending almost to the outer margin, but in *Epimorius* the venation is never thus modified. Forewing length 8.5–15.0 mm (expanse 18–35 mm), with possibility of rare exceptions; females often much larger than males. Scape not enlarged, hardly tufted; antenna of both sexes filiform, finely pubescent ventrally, scaled dorsally; labial palpus sexually dimorphic, that of male reduced, stiffly upcurved to about middle of front much as in related genera, largely concealed by long, conical, frontal scale tuft; female palpus long, about twice length of frontal tuft, porrect, with third segment distinct and normal; tongue well developed, coiled, but proximally stout, especially in male, not very long, heavily scaled; venation of forewing complete except for 1st anal, alike in male and female, without enlarged discal cell in male, cell closed; venation of hindwing with all veins present, cell open (Fig. 6). Male forewing with lustrous-white, somewhat flattened pouch containing dense, compact tuft of specialized scales on underside near costa, at about $\frac{1}{3}$ of wing length from base (Fig. 4), this

presumably a pheromone-dispensing organ involved in courtship. Similar structures occur in some species of *Paralipsa*, *Aphomia* (but not in *A. sociella* (Denis & Schiffermüller)), *Trachylepidia* Ragonot, and in the neotropical *Schistothecha gigantella* (Druce), and doubtless other genera. Genitalia hardly differing in either sex from those of *Paralipsa* or *Aphomia*, although ductus bursae may be abnormally short. Ductus bursae varies in length from less than length of corpus bursae (*testaceellus*) to more than twice its length (*prodigosus*). Male genitalia differ only in minor details from those of about eight other recognized genera of Galleriinae. Posterior margin of eighth abdominal sternum roundly, shallowly emarginate, not deeply notched.

The included species are: 1) *Epimorius suffusus* (Zeller) (1877:76, pl. 2, fig. 28), described from one female from Novo Friburgo, Brasil, in the Staudinger Collection, Zoological Museum, Berlin (see also Whalley 1964:581, fig. 42); 2) *E. testaceellus* Ragonot (1887:20), described from one female from Jamaica in the MNHNP (see also Ragonot 1901:430, pl. 45, fig. 22); and 3) *E. prodigosus* Whalley (1964:610, figs. 40, 101), described from five females from 9000'-10,000' in Peru. Whalley expressed doubt as to whether this species belonged in *Epimorius*. I have not seen it. A previously included fourth species, *E. epipaschiella* Hampson, 1917, from Colombia, was investigated by M. A. Solis of this laboratory on a recent trip to the Natural History Museum, London, and is now considered not to belong to *Epimorius*. It differs in its less convex forewing outer margin, more discrete forewing pattern and gray-brown rather than reddish coloring, more elaborate valve and vesica in the male genitalia, and two instead of three medial veins in the hindwing. For the present it is referred to *Macrothecha* Ragonot in the galleriine tribe Macrothecini. Also, it appears to be a junior synonym of *Stenopaschia gallerialis* Hampson, 1916 (Ann. Mag. Nat. Hist. (8) 18:153), from Colombia (M. A. Solis and Michael Shaffer, pers. comm.).

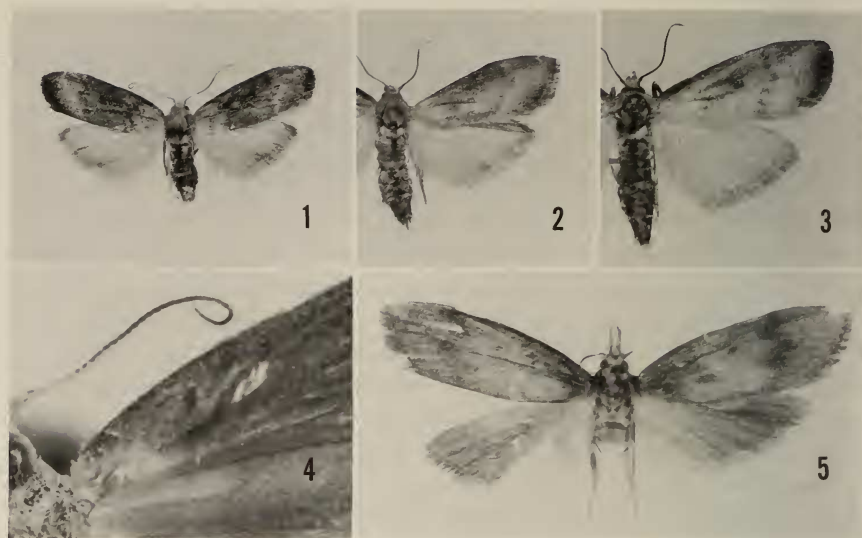
The collection of the USNM contains one female of an unnamed species of *Epimorius* from Dominica that appears closely related to *E. testaceellus*, and I describe it as new, thereby restoring to four the number of recognized species. *Passelgis xanthothrivalis* Dyar from Panama (male unknown) was at first mistaken by me for a species of *Epimorius*, but it has peculiar palpi that appear to lack the third segment. It may belong in the Chrysauginae where originally placed.

Epimorius testaceellus Ragonot
(Figs. 1-4, 6-8)

Epimorius testaceellus Ragonot (1887:20; 1901:430, pl. 45, fig. 22), Whalley (1964:581).

Type locality: Jamaica. Described from one female type in MNHNP.

Description. External structure as described for genus, and general wing form and pattern as illustrated (Figs. 1-3). Labial palpus about equal in length to foretibia and shorter than forefemur. Vestiture of head, thorax, and appendages pinkish or purplish tinged, of abdomen concolorous with hindwing. **Forewing:** reddish brown, variably suffused and marked with darker brown; curved, diffuse, antemedial and postmedial bands usually present and emphasized by areas of paler yellowish-brown coloring distad of



FIGS. 1-4. *Epimorius testaceellus*. 1, ♂, Fisheating Creek, 2 mi E. of Palmdale, Glades Co., Florida, larva on *Tillandsia fasciculata*, emerged 29 May 1974, J. B. Heppner. 2, ♀, same data but emerged 27 May 1975. 3, ♀, same data but emerged 8 May 1975. 4, ♂, part of left forewing, showing white scent pouch.

FIG. 5. *Epimorius caribellus*, ♀ holotype. All twice natural size except Fig. 4, which is about 10×.

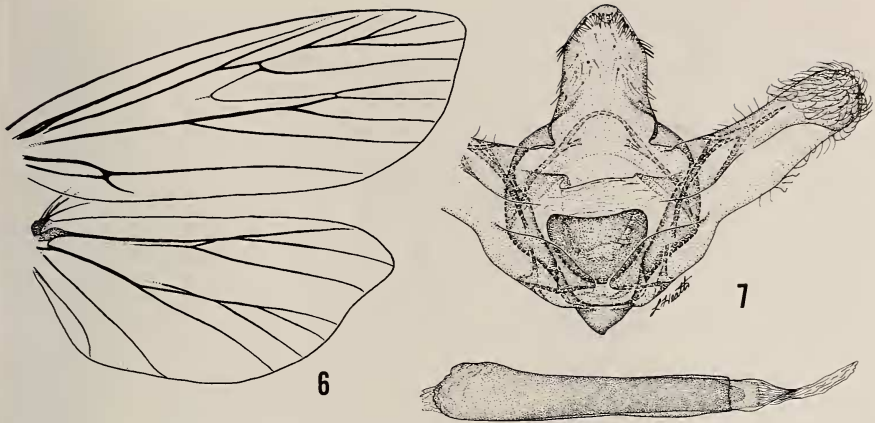
postmedial, and often also in median space or basad of antemedial; discal spot large, dark brown, very diffuse. **Hindwing:** pale brown basally (more so in females), darkening to pinkish or reddish brown distally, without markings. Fringes concolorous with adjoining wing surfaces. Underside almost unmarked, both wings with strong reddish tint, intensifying somewhat toward outer margins. Forewing length: males, 8.5-10.0 mm ($n = 6$); females, 10.0-12.0 mm ($n = 10$) (female holotype, 11.5 mm).

Male genitalia. As illustrated (Fig. 7). No other males known with which to compare them.

Female genitalia. As illustrated (Fig. 8). *Epimorius suffusus* has distinctively deeper, more funnel-like ostial cavity and less elongated ovipositor, and its bursa copulatrix extends cephalad to anterior margin of 7th segment, thus about same length as that of *testaceellus*. *Epimorius prodigiosus* also appears to have a deep ostial cavity, but differs from both of the foregoing species in the much greater length of the ductus bursae + bursa copulatrix, which apparently surpasses the 7th segment; this cannot be measured from the figure accompanying the original description of *prodigiosus* because the segment was dissected off and not shown. The new species from Dominica differs in having a smaller ostial cavity about twice as deep as that of *testaceellus*, but much extended bursa copulatrix that surpasses the cephalad margin of the 7th segment by about $\frac{1}{2}$ its total length.

Distribution. JAMAICA (type only). FLORIDA: Matheson Hammock, 14.5 km (9 mi) SW of Miami, Dade Co.; Fisheating Creek, 3.2 km (2 mi) E of Palmdale, Glades Co.; 9.6 km (6 mi) SE of Lake Placid, Highlands Co. A total of about 6 males and 10 females reared from larvae found on *Tillandsia fasciculata* Swartz at these localities in Florida by J. B. Heppner; adults emerged 15 Jan. 1974 (Dade Co.), and 5-8 May 1974 and 1975 (other localities). Specimens deposited in collections of the USNM, Washington, D.C., and the Florida State Collection of Arthropods, Gainesville.

Remarks. Although evidently well established, this species seems not to have been collected in Florida prior to 1974-75 and has not been seen since. It apparently does not



FIGS. 6, 7. *Epimorius testaceellus*. 6, wing venation (♀). 7, ♂ genitalia (aedeagus removed).

come to light. I looked for larvae more recently at Fisheating Creek and elsewhere in Florida without success.

Epimorius caribellus Ferguson, new species

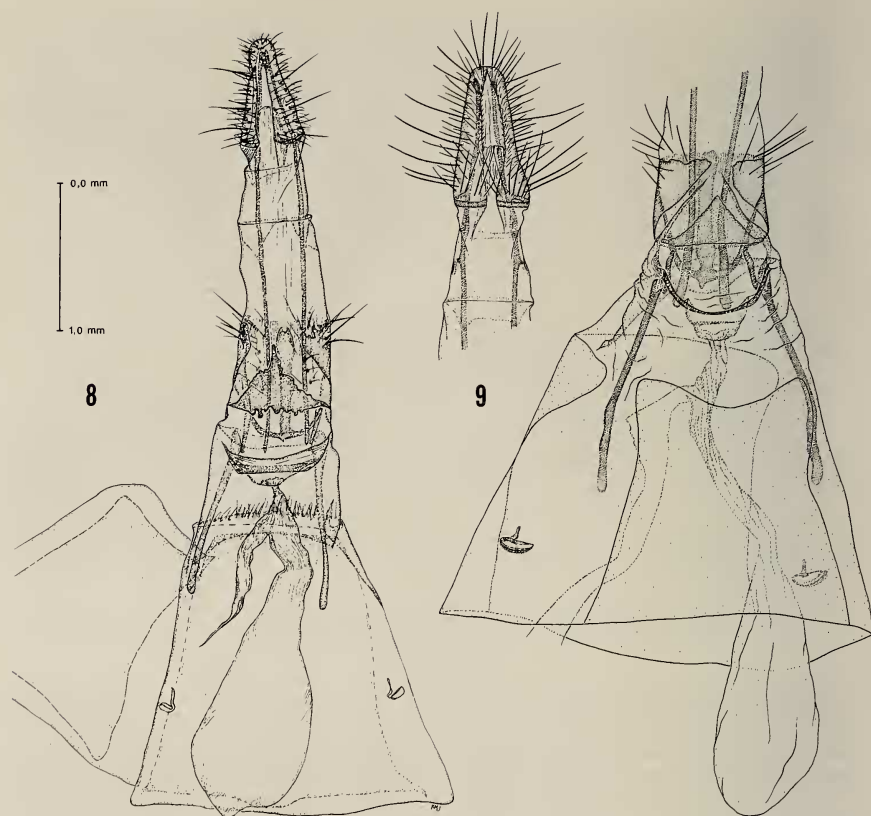
(Figs. 5, 9)

Description (female only, Fig. 5). Generally similar to *testaceellus* in color and external structure, except that forewing is slightly more produced toward apex, and labial palpus is much longer, being about equal in length to forefemur and half again as long as foretibia (that of *testaceellus* shorter than forefemur and about equal to foretibia). Legs also longer than those of *testaceellus*. Antenna filiform, slender, more densely pubescent ventrally than that of *testaceellus*, closely scaled above, pale brownish. Body, head, palpus, and legs pale brown, more or less tinged with pink. **Forewing:** light reddish brown, sparsely dusted with black scales, with antemedial and postmedial band darker reddish brown, wide, very diffuse, irregularly, coarsely dentate; discal spot small, dark brown. **Hindwing:** gray brown, much darker than that of *E. testaceellus* and almost without pinkish tints. Fringes concolorous with wings. Undersurfaces gray brown, forewing with pink costa and pink-tinged subterminal band. Forewing length: 15 mm; wing expanse: 32 mm.

Female genitalia (Fig. 9). About one and one-third times larger than those of *E. testaceellus* or *E. suffusus*, with relatively long ductus bursae, which, like that of *suffusus*, is about equal in length to corpus bursae. However, ductus and bursa together are much longer, so that corpus bursae protrudes for more than half its length beyond anterior margin of seventh segment. Ostial opening lies at bottom of rounded, bowl-shaped depression, smaller than that of *suffusus* and differing in that maximum width of bowl-shaped ostial cavity is less than distance between anterior apophyses at their bases. Ostial cavity, unlike that of other two species, has roundly concave posterior margin subtending a long, bowed, rodlike, transverse sclerite. *Epimorius prodigiosus* (Whalley 1964: fig. 101) differs by having still longer ductus bursae, twice as long as corpus bursae, and much larger, deeper ostial cavity, apparently somewhat like that of *suffusus*.

Type. Holotype, female (Fig. 5), 2 mi NW of Pont Casse, Dominica, 6 June 1965, D. R. Davis; USNM genitalia slide No. 57,305; in collection of USNM.

Remarks. The type is the only known specimen, and its wings are somewhat damaged. Relative to *E. testaceellus*, which also occurs in the West Indies, *caribellus* has a larger, longer winged, more uniformly reddish aspect, and dusky rather than pale pinkish-brown hindwings. The forewing discal spot is smaller and more sharply defined, and the trans-



FIGS. 8, 9. ♀ genitalia. 8, *Epimorius testaceellus*. 9, *E. caribellus*, holotype, ovipositor cut off and shown to left.

verse bands are wider and bright reddish brown rather than grayish brown as in *testaceellus*.

ACKNOWLEDGMENTS

For their advice and assistance in various forms I thank Paul E. S. Whalley, M. Alma Solis, and Vitor Osmar Becker. Pierre Viette, by sending me the type of *E. testaceellus* from Paris, made the final identification possible. John B. Heppner deserves special tribute for providing the first material of this species known to have been collected since it was described in 1887. The genitalia drawings are by SEL staff illustrator Linda Heath Lawrence and SEL summer intern Kathy Jones, and the wing venation drawing is by the author. For reviewing the manuscript, I thank J. B. Heppner, E. G. Munroe, M. A. Solis, J. P. Donahue, A. L. Norrbom, and an anonymous reviewer.

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Received for publication 28 January 1991; revised and accepted 7 June 1991.